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Author post-print (accepted) deposited in CURVE January 2016

Original citation & hyperlink:

Zhao , Xing , Kneafsey, M. and Donald Finlay (2016) Food safety and Chinese geographical indications. British Food Journal, volume 118 (1): 217-230

<http://dx.doci.org/10.1108/BFJ-04-2015-0137>

ISSN 0007-070X

DOI 10.1108/BFJ-04-2015-0137

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Food Safety and Chinese Geographical Indications

Introduction

Alongside tremendous economic growth, China has experienced numerous food scandals. In 2008, 53,000 children were made ill by milk powder contaminated with the industrial chemical melamine. Doubts as to whether food safety is firmly within government control have been reinforced by several other incidents, such as when Shanghai's food safety authority found evidence that a suspicious level of an antiviral drug was present in Yum Brands Inc's Kentucky Fried Chicken in December, 2012. Amongst Chinese consumers, there is a growing tendency to search for their food more carefully, with special attention paid to safety (IBM, 2008). In fact, based on an investigation with more than 1000 Chinese respondents, Ouyang (2011) even declares that 94.5% of consumers have questioned the safety level of Chinese food products. Certified food products, such as organic products and those that are registered under 'Geographical Indication' (GI) systems, are thus becoming the subject of increased interest from the point of view of safety.

It would be reasonable for consumers to believe that GIs not only present "localised quality" to the market but also offer a "double guarantee" on food safety, given that the qualification process, in theory, follows a defined code of practice that at least meets national minimum safety standards (Henchion and McIntyre, 2000; Parrott et al., 2002). Yet, there have been reports of a number of Chinese GI food products with 'unacceptable' safety levels, such as Jinhua ham poisoned by pesticides, illegal food additives used in the production of Longkou cellophane noodles and Baiyangdian duck eggs that contained a poisonous red dye. Frequent instances highlighting food safety concerns demonstrate that the Chinese GI system is not working as had been expected and it is this apparent deficiency that serves as the focal point for this paper.

Food crises and the GI context

It is government's responsibility to define the legally acceptable composition of food products in order to protect the public from unsafe foodstuffs (Barling, 2004). Governments generally issue measurable safety standards and develop control and

monitoring systems in response to *'both real and perceived food safety problems'* (Henson and Caswell, 1999 p.589). Products falling below minimum safety standards would be removed from the market.

For several decades, foods produced in accordance with these objective and measurable technical parameters have met with broad social support. Consumers have come to rely on 'uniform standards' to judge the safety level of food products (Goodman and Watts, 1997; Renting et al., 2003). For almost three decades, however, food crises such as BSE, chemical contamination and concern over genetically modified foods, have heightened concerns in conjunction with anxieties related to the mass standardised food industry. The succession of safety problems has altered some consumers' opinions and challenged their confidence in the 'uniform standards' approach (Goodman, 1999). As Beck (2001, p.273) stated, *'many things that were once considered universally certain and safe and vouched for by every conceivable authority [e.g. beef] turn ... out to be deadly'*. Many consumers no longer tend to unconditionally believe or trust standardised food products (Shine et al., 1997; Benbrook et al., 2008).

In this situation, many consumers want more information about their food to make the right decision and to protect themselves (Hunt and Frewer, 2001). In developed countries, and stimulated by consumers' demands and citizen engagement with food issues, many small-scale farmers *'increasingly squeezed by industrialisation'* (Fine, 1994 p.524; Van Der Ploeg et al., 2000) have turned to 'alternative' agrifood networks (AAFNs). Configured differently, for example, in the form of short food supply chains, farmers' markets, organic farming practices, and place-based production, AAFNs *'attempt to create 'closer' relationships between producers and consumers'* (Kneafsey et al., 2008 p.37) and hence decrease the perceived 'risk' of consumers (Murdoch et al., 2000; Goodman, 2003; Winter, 2003).

Through indicating food products' special geographic origins, GIs can be understood as a specific branch of AAFNs as many consumers believe that locally recognisable food products, being more traceable and produced according to defined codes of

practice, are of higher quality than standard products and by implication, offer a reliable guarantee of safety (Kuznesof et al., 1997; Parrott et al., 2002; Mansfield, 2003; Kneafsey et al., 2008). Examples of GI systems include the French appellation d'origin scheme and the European 'PDO' and 'PGI' systems. Within GI systems, producers are required to co-operate together to apply for GIs from the government based on preset GI qualification schemes. Anybody located in the specific area and making products conforming to the requirements of the qualification process, has the right to use GIs on their products after application. In the GI system, it is in theory always up to the government department and/or an independent third party to inspect production processes, guarantee the conformity of actors to official norms, and protect the GI against fraud (O'Reilly and Hains, 2004; Hayes et al., 2004, 2005). Therefore, the safety level of food products with GIs is often deemed higher than other similar products because the qualification and inspection processes follow certain food safety criteria presented by producers in the application process. In China during the last decade, however, many sub-standard unsafe GI food products have been reported in the food market. In order to uncover the reason for this situation, the need to evaluate the ability of the Chinese GI system to secure 'pre-set' food safety levels is becoming very urgent.

Chinese GI schemes

The first time geographical origins attracted Chinese attention was in the 1980s when China became one of the signatories to the Paris Convention for the Protection of Industrial Property 1883, in 1985. Three parallel legislative frameworks, established by the State Administration for Industry and Commerce (SAIC), the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ), and the Ministry of Agriculture of the People's Republic of China (MoA), exist to regulate the Chinese GI system [1].

Based on the Trademark law, in 2003, the SAIC issued a regulation entitled '*Measures for the Registration and Administration of Collective Marks and Qualification Marks*' to provide some specific rules and explanations in the management of GIs. According to the regulation, any party applying for the registration of a GI as a collective mark

or a qualification mark must present information regarding *'the special quality, reputation or other characteristics of the commodity branded with the geographical indication; the relation between the natural and cultural factors of the region by the geographical indication and the special quality, reputation or other characteristics of the commodity; and the scope of the region indicated by the geographical indication'*. Articles 17 and 18 note that *'the collective members of the registrant of a collective trademark may use the collective trademark upon carrying the procedures stipulated in the rules for administration of the use of the collective trademark; Collective trademarks may not be used by non-collective members'* and *'[P]arties that meet the requirements specified in the rules for administration of the of a qualification trademark may use such trademarks upon carrying out the procedures specified in the rules for administration of the use of the qualification trademark, and the registrant may not refuse to carry out the procedures'* (State Intellectual Property Office of P.R.C., 2003).

Beside the SAIC, the AQSIQ also confirmed its authority to regulate the GI system based on the *'Provisions on Protection of GI Products'*. According to Article 10, to register a GI the applicant should submit the following documents: *'local government's proposal for the defined limits of the place of origin of the product of a geographical indication; local government's document establishing the application organisation or designating an association or enterprise as an applicant; documentary material proving the product of geographical indication'*. In order to use the GI, the manufacturer located in the territory has to file an application to the local AQSIQ and submit the following documents: *'an application for use of the exclusive indication of the products of geographical indication; a certificate issued by the competent authorities of the local government proving that the products concerned originate from the particular area; and an inspection report issued by the relevant product quality inspection department'* (Article 20). As a supervisory department, the AQSIQ still has the right to monitor and supervise production processes of GI products, even after registration (General Administration for Quality Supervision, Inspection and Quarantine of the P.R.C., 2005).

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The third GI framework was established by the MoA with its *'Measures for the Administration of Geographical Indications of Agricultural Products'*. According to Article 9, the documents that must be offered to apply for a GI are, *'a registration application form; a certificate on the qualification of the applicant; a description on the typical characteristics of the product and a corresponding product quality appraisal report; the environmental conditions of the producing area of the product, the technical norms for production and the technical norms for product quality safety; a document determining the territorial scope, and a distribution map of its producing area; a straight sample or a sample picture of the product; and other necessary descriptive or evidentiary material'*. In the registered territorial scope, an entity or individual may apply to the certificate holder to use the registered GI after supplying the following documents: *'the agricultural product produced or traded by it/him originates from the territorial scope indicated in the registration certificate; it/he has obtained the corresponding qualification for producing or trading the agricultural product concerned; it/he is capable of conducting producing and trading activities in strict accordance with the prescribed quality and technical norms; and it/he has the capacity for the market development and operation of the agricultural product concerned'* (Article 15). Based on the 'Measures', the relevant administrative department of agriculture at or above the county level holds the right to supervise and examine the usage of GIs on a regular basis (The Center for Agri-food Quality & Safety, the Ministry of Agriculture of the P.R.C., 2008).

Theoretically, GI food products should be 'safe' to eat as the proposed specific GI standards can be secured through qualification and inspection processes. But, the safety aspect is only mentioned in the MoA framework with no 'higher safety level' requirements. In other words, special safety standards are not a necessary condition to apply for GIs and 'pre-set' GI safety standards can be the same as government compulsory safety standards. The effectiveness of the Chinese GI system in offering extra security on food safety thus remains uncertain.

The Chinese food safety regulatory system

Within the Chinese GI system, the SAIC, the AQSIQ and the MoA are given the

inspection authority to ensure the safety level of GI food products. However, in the face of numerous Chinese food crises, not only these three government departments but also the prevailing Chinese food safety regulatory system has been criticised by many researchers (e.g. Tam and Yang 2005; Roth et al., 2008) for a number of reasons.

Firstly, the Chinese food safety regulatory system is relatively complicated. Four ministries and agencies, namely the SAIC, the AQSIQ, the MoA, and the National Health and Family Planning Commission of the P.R.C. are empowered to ensure food safety according to different laws, such as the Product Quality Law of the P.R.C., the Food Safety Law of the P.R.C., and the Agricultural Product Quality Safety Law of the P.R.C. The fragmentation of responsibility and regulatory authority for food safety among those government ministries and agencies has a negative impact upon the effectiveness and efficiency of food safety control (Figure 1), because *'[I]n certain aspects, there may be excessive enforcement; in others, shirking of responsibility may be the outcome'* (Tam and Yang, 2005 p.14). The opportunity to provide unsafe food products thus emerged (State Intellectual Property Office of the P.R.C., 2011).

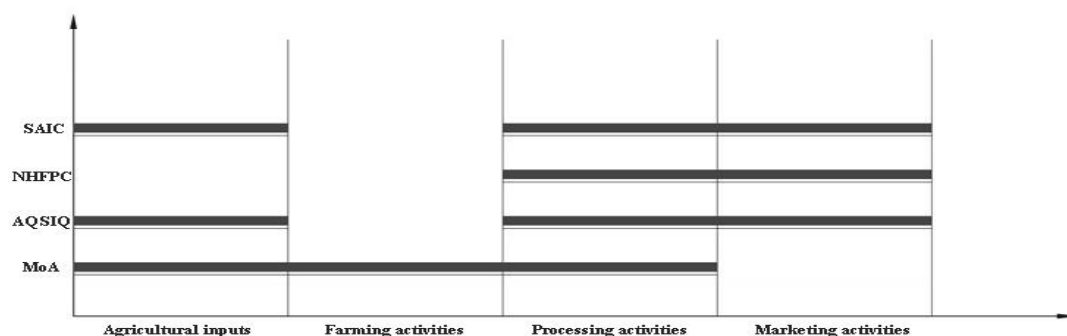


Figure 1: The responsibilities of the four departments involved in control of food safety in China

Secondly, building an effective food safety control system to govern production and marketing activities is still work in progress in China. Marketing research has noted that many of the food problems can be traced back to farms where safety is almost uncontrollable. Williams (2005) and Roberts and Engardio (2006) commented that obtaining a high profit is difficult in the contemporary competitive Chinese food

market because most traders go to the cheapest supplier. Consequently, food producers prefer to rely heavily on the use of chemical inputs to increase production and to deal with pests. The problem is, with low education levels in the use of chemicals, many farmers believe that the more chemicals they use, the better their products (see also Brogaard and Zhao, 2002). Over or inappropriate usage may thus occur, such as farmers failing to wait for the prescribed number of days between the last application of a pesticide and the harvest resulting in excessive residues in the harvested product (World Bank, 2006; Calvin et al., 2006). Rural China is filled with millions of small-scale farms occupying less than 0.80 ha [2] of land (National Bureau of Statistics of China, 2012), and how to secure the safety level of food products through a relatively small number of government inspectors remains a problem. Meanwhile, millions of small-scale food traders who dominate most of the food trade in the Chinese market handle small volumes of products and operate on a cash basis with no or little documentation [3] (Calvin et al., 2006; Roth et al., 2008). It is almost impossible for government officers to trace and recall unsafe food products from the market. With no inspection but motivated by profit maximisation, producing and trading unsafe food products seems an unavoidable consequence in today's Chinese food market. As Roberts and Engardio (2006) argue, the pursuit of profit is not a problem by itself but problems arise when that pursuit takes a short-term orientation and is not kept in check by market or regulatory forces.

Thirdly, in order to increase government tax income and employment opportunities, local governments may protect counterfeiting businesses by laxly enforcing regulations over food safety. As Luo Yunbo, Dean of the Food and Nutrition College of China Agricultural University asserts, *'if local governments close all the companies that violate food regulations, a lot of workers will lose their jobs'* (Engardio et al., 2007 p.42). Indeed, there are cases where some food producers are able to obtain legal licenses in spite of poor production conditions. Guanshengyuan, a famous food company in China, was reported making moon-cakes using expired materials in 2001, and Jijihong, a big franchised catering company, was discovered using unsafe additives in food processing in 2010.

The combination of a fragmented regulatory system, an ineffective monitoring system, and a thriving counterfeiting business present a challenge to the government to secure food safety in China. According to the results of an investigation run by the Greenpeace Organisation to check vegetable pesticide residue level, the non-compliance rates with governmental standards in 2014 were 34% in Guangzhou markets and 40% in Beijing markets (Greenpeace Organisation, 2015). Because it appears difficult to ensure food safety through the prevailing food safety regulatory system (see also Bristow, 2007), the ability of the SAIC, the AQSIQ and the MoA to inspect the safety level of GI food products can be questioned.

Research methodology

To assess the effectiveness of Chinese GI schemes in offering extra guarantees on food safety through qualification and inspection programmes, network concepts were applied to three exploratory GI case studies. Network concepts focus on *'how different kinds of nodes (people, firms, states, places and organisations) are connected to one another in complex and multi-stranded ways'* (Hughes, 2000 P.178) and have been adopted in various forms by many agrifood scholars (e.g. Hughes, 2000; Ilbery and Maye, 2005; Tregear et al., 2007). GI schemes were thus conceptualized as networks of different actors who are connected through both *'vertical commodity exchange relationships'* and *'the multi-directional flows of information and materials that variously support these exchange relationships'* (Hughes, 2000 p.178) to generate agrifood products within certain safety criteria. Using this approach, an investigation of selected GI networks was carried out to examine *'how relations amongst people and things might be imagined, assembled and translated to effect co-ordination at a distance'* (Larner and Le Heron, 2002 p.417).

Up until the end of 2010, 1,949 GI products were registered with the three Chinese GI frameworks of which 94.9% are food products (Beijing Zhongjunshiji GIs Researching Team, 2011). As the number of GIs is too large to undertake an exhaustive investigation, preliminary research was first conducted to choose suitable samples. Based in Jiangxi Province where the main researcher lives [4], four agricultural researchers at Jiangxi University of Finance and Economics and Jiangxi

Agricultural University along with twelve GI food consumers formed focus groups where several important sampling criteria were identified, including 'valuable' (with high value of output), 'accessible' (many potential interviewees), 'typical' (small-scale farms) and 'variable quality reputation'. Through a pre-test survey with twelve supermarket consumers, three GI food products⁵, namely Gannan navel orange, Nanfeng mandarin, and Wuyuan green tea, were finally chosen to undertake the research [6].

Taking into account culturally acceptable modes of engaging with participants in China, the use of 'gatekeepers' to gain access to relevant data and networks was regarded as a necessary first step in this investigation. Therefore, at least three government officers within each GI network were recommended by four scholars at the two aforementioned Universities in Jiangxi province. Then, these government officers were contacted by telephone and asked if they would like to participate in this research and whether they were able to contact further potential interviewees who are personally involved with food safety issues within the network, such as technicians, farmers and middlemen. After obtaining positive answers, the investigation was conducted. Finally, government officers, drafters of GI standards, managers of GI holders, farmers, processors, intermediaries, and managers of the contract farming system totaling 43 individuals were interviewed [7] with around 14-15 interviewees in each case study. They each were asked to answer questions following an interview guide that was designed in advance and related to the effectiveness of the regulatory programmes, production behaviour, GI standards and GI label issuing procedures. In practice, respondents were also encouraged to engage in a more open and interactive discussion under the guarantee of anonymity.

Data analysis

All primary and secondary data collected was processed in three phases, namely transcription, classification, and connection. From the data analysis, a number of important themes emerged.

The impact of GI issuing procedures upon safety based on GI standards

In China, the GI system requires that products have to meet 'pre-set' standards before being sold under the GI. GI food products are thus supposed to offer an extra guarantee of safety. However, the case studies indicate that the safety level of Chinese GI products may be little different to non-GI products due to 'low' or 'basic' GI standards and inappropriate GI issuing procedures.

Chinese farmers were discouraged from co-operation until 2006 when the 'Law of the P.R.C. on Specialized Farmers Cooperatives' was approved. Due to a lack of accumulated knowledge, effective independent farmers' co-operatives were rare in the study region, and 'pre-set' GI standards were thus proposed by the local government. For instance, 'The National Standard: Product of geographical indication — Gannan navel orange' (GB/T 20355-2006)' was written by the Jiangxi Association of Standardisation [8], the Ganzhou Fruit Industry Bureau, and the Ganzhou Bureau of Quality and Technical Supervision. 'The National Standard: Product of geographic indication — Nanfeng mandarin' (GB/T 19051-2008), was written by the Jiangxi Provincial Bureau of Quality and Technical Supervision, the Fuzhou City Bureau of Quality and Technical Supervision, and the Nanfeng county Bureau of Quality and Technical Supervision. Whilst there is no national standard for Wuyuan green tea, the GI standard drafter interviewed also pointed out that 'pre-set' GI standards presented to the AQSIQ, the SAIC and the MoA in the GI application processes were made by government technical officers under local government requirements.

To meet its aim of increasing local incomes, understandably, the local government prefers to issue 'low' or 'basic' rather than 'strict' GI standards to ensure all products produced in the protection area can be retailed under the GI. Therefore, issuing safety standards for the three GI products that are identical to the compulsory national standards has become an unavoidable result for the Gannan area, Nanfeng county and Wuyuan county governments. For instance, according to the national standard of Gannan navel orange, the safety level of Gannan navel oranges should meet the requirement of NY5014 (Products of No-social Effects of Pollution — Hesperidium Fruits) which is the compulsory national standard. Also, based on the national standard of Nanfeng mandarins, the safety level of Nanfeng mandarins should meet

the requirement of both NY 5014 and GB/T 12947 (National standard of Fresh Citrus).

The safety standards contained in GB/T 12947 are also compulsory national standards for fresh citrus.

In practice, even such 'basic' standards are compromised due to an inappropriate quality checking stage and thus the perceived extra safety guarantee is not entirely met under the GI issuing procedure. Within the Gannan navel orange case, applicants who want to apply for a GI on their products need only to complete the application form and hand it into the local Fruit Industry Bureau. On obtaining the permit of the city government, the applicants can use GI labels for one year after a certain payment has been made. A physical quality checking stage is not involved at all. In the Nanfeng mandarin case, farmers can get GI labels for free [9] without application or quality checking stages, and trading companies/intermediaries are simply required to hand the application form into the local government office and pay for GI labels but again without proceeding through a quality checking processes. Even though the GI issuing procedure in the Wuyuan green tea case is slightly different from the other two cases given that there is a checking stage, the procedure is still questionable as the sample itself is offered by the applicants themselves rather than being selected independently using scientific sampling methods.

The effectiveness of government inspection programmes on ensuring safety levels

Within Chinese GI schemes, GI food products are produced in protected areas and their safety level can be secured not only by GI issuing procedures but also by government regulatory authorities through inspection programmes based on GI standards. However, the Chinese weakness emerges when the government not only proposes and executes but also inspects GI standards within the economic policy context. Each of the three case studies revealed that safety standards are not well-known or embedded within the production processes of the respective GI networks.

This situation may have been caused by several reasons. Firstly, the overlapping regulatory authorities between different government departments has reduced the

impact of standards. For example, in the Gannan navel orange case, *Government Officer A* believed that it was the responsibility of the local SAIC to regulate the pesticide market to ensure the safety level of Gannan navel oranges in the market. But, *Government Officer B* indicated that, it is the responsibility of the agricultural department to control farming inputs, such as pesticides and fertilisers. The direct result of overlapping regulatory responsibilities was demonstrated by comments such as, '*I know some sorts of forbidden pesticides cannot be used, but some farmers still can and prefer to buy and use them because of the low cost*' (*Government Officer C*).

Unclear responsibilities also slow the response of the government to some accidents. For instance, dyed Gannan navel oranges [10] have been found several times on the market over the last decade and the safety level of Gannan navel oranges was thus questioned by consumers. But, several tonnes of dyed Gannan navel oranges were still reported by journalists even in the winter of 2014. *Government Officer A* complained that,

'It is the (Ganzhou Fruit Industry) Bureau's duty to catch the dealers who dyed and sold these navel oranges. However, ... as the Bureau has no authority in law to sentence and make any punishment, I do not know which department, the SAIC or the AQSIQ, would help the Bureau to manage this situation'

Secondly, for some reasons, government officers infrequently regulate production activities or check the safety level of GI products at farm level. As *Government Technician B* in the Nanfeng mandarin case explained,

'[N]ot many officers work for my department, it is impossible to regulate production activities and check the quality regularly'

For government officers, there is even a perceived trade-off between strict inspection programmes and farmers' incomes because '*strict inspection programmes may increase inputs and thus decrease producers' incomes and the local government's (tax) income*' (*Government Officer A* in the Nanfeng mandarin case). Reducing the

frequency of market inspection programmes and believing safety inspection is not a regular '*priority task for the county's government*' (*Government Officer B* in the Gannan navel orange case) are becoming commonplace in the three sample cases.

Thirdly, the limited acknowledgement by government technicians of the safety aspect weakens government enforcement. For example, *Technician B*, who is also a government officer, in the Gannan navel orange case pointed out, '*... the high level of pesticide remaining does not matter. Most of the time, farmers or middlemen only need to sell their navel oranges later, because pesticides remaining on the peel would decrease as time passes by*'. However, this point is debatable. According to Kang et al. (2002), the chemical materials can be absorbed by the oranges through the root from the soil rather than simply remaining on the peel. Also, within the Wuyuan green tea case, *Government officer C* indicated '*...it is important to wash the tea by hot water before drinking as the dust can be washed and germs can be killed*'. In these examples, it seems that the attitude of the technicians towards safety aspects has become an obstacle to enhancing government enforcement.

The safety forming processes in practice

This given the prevailing context of inappropriate GI issuing processes, overlapping regulatory authorities, infrequent safety inspection programmes and the unconcerned attitudes of some government technicians towards the safety aspect, producers recognise that '*[N]owadays, nobody takes care of the quality (including the safety aspect) and checks it*' (*Farmer C* in the Wuyuan green tea case). Therefore, very few individual producers pay specific attention to the undetectable safety aspects of their products, an attitude strengthened by the fact that final consumers themselves have a very limited ability to evaluate the food product safety (e.g. dust in the tea, the level of chemical residues)

As *Middleman C* from the Gannan navel orange case explained, '*...it is difficult for the individual consumer to judge the safety level... Even though products should be produced according to government safety standards, the safety issue in the retail market is not important at all ... I do not purchase navel oranges based on the safety*

standards'. All 'useless' costs are thus cut. For example, within the Wuyuan green tea case, individual farmers process most of their fresh tea leaves and shoots in small processing factories which charge a hiring fee through offering processing equipment. Even though the hygiene conditions in these small-scale processing factories are questionable (such as limited processing space which means that some farmers dry their tea products on the road in the sunshine), farmers still prefer to use them due to cost considerations. *Farmer B* specified,

'... due to the cost, it is impossible for me to purchase a processing machine individually. ... the price of refined tea products is always less than 100 RMB per KG. But, processing 1 KG refined green tea needs at least 4-5 hours by hand. The personal input is even higher than the price middlemen paid. ... (therefore, without any concern about the hygiene conditions) I use processing equipment in small processing factories by paying a hiring fee'

According to interviewees, only those farmers who are contracted farmers, i.e. those who deliver all their produce to large middlemen/processors at a certain future price but represent only a small proportion of total products produced, are able to satisfy the safety conditions but mainly because of the ability of the large-scale buyers to check safety.

Accordingly, contracted *Farmer C* explained that although he knows the usage of pesticides can increase the output, he only spreads pesticides once or twice a year according to the suggestion of the contracted processor's technicians. But ironically, in order to allow their products to be defined as 'good quality' in the market and avoid market risks, the products sold by contracted middlemen/processors to the market are always under private trademarks rather than GIs for the simple reason that currently the quality level (including the safety aspects) of GI food products remains difficult to ensure.

Conclusions

This paper has highlighted increasing consumers' concerns about food safety in China

over the past decade. This situation presents a challenge and yet an opportunity for the Chinese government to improve food safety levels. Currently, growing attention is being placed upon an evolving GI system. As qualified labels, GIs have potential to offer an extra opportunity to secure the safety level of food products. However, with three parallel legislative GI frameworks and an ineffective prevailing food safety regulatory system, the ability of the Chinese GI system to deliver a special guarantee on food safety is still questionable. Therefore, given that little research has been undertaken, this investigation has conducted an initial exploration to evaluate the effectiveness of Chinese GI schemes in securing food safety.

The research findings from this paper demonstrate that the Chinese GI system as applied to three case study products is not able to offer an extra guarantee on food safety. It appears that the Chinese authorities are missing an opportunity to improve food safety via the GI system due to the focus on raising farmers' income rather than reducing safety concerns. This situation not only inhibits consumers' agency within the network but also highlights the inappropriate structure of Chinese GI schemes as no independent standard auditor and inspector exists beside the government.

Theoretically, the safety level of GI food products should be more secure because of appropriate GI issuing procedures and specific government inspection programmes based on strict GI standards. However, in contrast to many European cases, within which GI systems appeared in tandem with consumers' safety concerns relating to falling confidence in industrial conventional 'uniform standards' (Ilbery and Kneafsey, 2000; Winter, 2003), both the industrial agrifood system and the GI system developed simultaneously in the 1990s in China. In other words, Chinese GI networks developed not in response to consumers' changing attitudes to industrial food products but as an expression of the government's aim to increase farmers' incomes. Therefore, based on the European experience that co-operative behaviour can enhance food safety levels (Callon et al., 2002; Gade, 2004; O'Reilly and Haines, 2004), the government needs to be aware of the danger of bureaucracy and future research is urgently required to not only explore methods to encourage producers to attend GI management programmes, to generate appropriate GI standards, to be actively involved in GI

issuing processes, and thus to provide 'safe' GI products, but also enhance consumers' ability to identify some of the safety risks in the GI products. Meanwhile, the investigation shows that the large processors may play an important role in ensuring food safety within Chinese GI networks. As effective cooperation between farmers and large processors may be a potential solution to secure food safety within Chinese GI networks, specific attention to the design of co-operative mechanisms and models for expansion is required. In addition, with weak government enforcement, there is also an increasing need to build an effective food safety regulatory system to ensure food safety and protect consumers' rights in the Chinese food sector. Intertwined in this debate is a wider research concern about the Chinese government's regulatory system and how an effective food safety control system to govern production and marketing activities can be developed to work in tandem with a given political environment. Finally, a limitation of this study was the use of three samples from similar product categories. Further work could include a comparison with different GI products (such as chicken, fish, and wine) to examine potential differences between GI networks.

Notes

1 In China, the National People's Congress ranks the highest in the administrative system pyramid and the State Council is the chief administrative authority. These three ministries and agencies lie directly under the State Council. This structure is replicated at the provincial and county levels.

2 $(\text{Total sown area} + \text{Tea plantation area} + \text{Orchards area}) / (\text{population in rural areas} / \text{average family household size})$ (National Bureau of Statistic of China, 2012)

3 Traditional food supply system dominates the food sector in China rather than the industrial food system

4 Stake (2005) indicates whatever cases are chosen should offer the opportunity to maximize what can be learned. Considering the social relationships of the researchers, the time span for undertaking the research and the distribution of GI numbers in China, Jiangxi Province where the main researcher lives was chosen to do the research (67 GI products are produced in Jiangxi Province which is a little bit higher than the average number of 64 per province/autonomous regions/municipality and 34% higher than the median number of 50 per province/autonomous regions/municipality in China)

5 More data focusing on food quality based on these three cases can be found on Zhao et al. (2014)

6 Due to different regulation system between national and international markets and limited export amount of three products (only around 2.29% production of Gannan navel oranges and 7.45% output of Nanfeng mandarins were exported to international markets in 2009, and 12% of the annual output value of Wuyuan green tea was contributed by international markets in 2010), three case studies only focus on national market.

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7 Individual consumers were not investigated as actors in this research. Instead, middlemen were interviewed as agencies of consumers because they know consumers/market requirements very well.

8 A technical association formed by technological experts and administrated and funded by the government

9 The government officers send GI labels to different villages and farmers can use as many as they like

10 Using staining materials to make navel oranges look better

References

Barling, B. (2004), "Food Agencies as an Institutional Response to Policy Failure by the UK and the EU", in Harvey, M., McMeekin, A., and Warde, A. (Eds.), *Qualities of Food*, Manchester University Press, Manchester, pp. 108-128.

Beck, U. (2001), "Ecological Questions in a Framework of Manufactured Uncertainties", in Seidman, S. and Alexander, J. (Eds.), *The New Social Theory Reader: Contemporary Debates*, Routledge, London, pp. 267-275.

BeiJing ZhongJunShiJi GIs Researching Team (2011), "The Second Investigation Report of the GIs in China", available at http://district.ce.cn/zg/201101/15/t20110115_22143582.shtml (accessed 15, Dec. 2014).

Benbrook, C., Zhao, X., Yáñez, J., Davies, N., and Andrews, P. (2008), "New Evidence Confirms the Nutritional Superiority of Plant-Based Organic Foods", available at http://www.organic-center.org/reportfiles/5367_Nutrient_Content_SSR_FINAL_V2.pdf (accessed 15, Dec. 2014).

Bristow, M. (2007), "China Tackles Tainted Food Crisis", available at <http://news.bbc.co.uk/1/hi/world/asia-pacific/6288096.stm> (accessed 5, May 2015).

Brogaard, S. and Zhao, X. (2002), "Rural Reforms and Changes in Land Management and Attitudes: A Case Study from Inner Mongolia, China", *Ambio*, Vol. 31, No. 3, pp. 219-225.

Callon, M., Méadel, C., and Rabeharisoa, V. (2002), "The Economy of Qualities", *Economy and Society*, Vol. 31, No. 2, pp.194-217.

Calvin, L., Gale, F., Hu, D., and Lohmar, B. (2006), "Food Safety: Improvements Underway in China", *Amber Waves*, Vol. 4, No. 5, pp. 16-21.

- Engardio, P., Dexter, R., Balfour, F., and Einhorn, B. (2007), "Broken China", *Business Week*, 23 July, pp. 45.
- Fine, B. (1994), "Towards a Political Economy of Food", *Review of International Political Economy*, Vol. 1, No. 3, pp. 519-545.
- Gade, D. (2004), "Tradition, Territory, and Terroir in French Viniculture: Cassis, France, and Appellation Controlee", *Annals of the Association of American Geographers*, Vol. 94, No. 4, pp. 848-867.
- General Administration for Quality, Supervision, Inspection and Quarantine (2005), "Provisions on Protection of GI Products", available at http://www.aqsiq.gov.cn/zwgk/jlgg/zjl/zjl20052006/200610/t20061027_12254.htm (accessed 15, Dec. 2014).
- Goodman, D. (2003), "The Quality 'Turn' and Alternative Food Practices: Reflections and Agenda", *Journal of Rural Studies*. Vol. 19, No. 1, pp. 1-7.
- Goodman, D. (1999), "Agro-Food Studies in the 'Age of Ecology': Nature, Corporeality, Bio-Politics", *Sociologia Ruralis*, Vol. 39, No. 1, pp. 17-38.
- Goodman, D. and Watts, M. (1997) *Globalising Food: Global Questions and Global Restructuring*, Routledge, London.
- Greenpeace Organisation (2015), "Food Baskets within Metropolis, Foodstuffs in ShangHai are Safer than others", available at <http://www.greenpeace.cn/news/shopping-basket.php> (accessed 8, May 2015).
- Harvey, M., McMeekin, M., and Warde, A. (2004), "Introduction: Food and Quality", in Harvey, M., McMeekin, M., and Warde, A. (Eds.), *Qualities of Food*, Manchester University, Manchester, pp. 1-18.
- Hayes, D., Lence, S., and Babcock, B. (2005), "Geographic Indications and Farmer-Owned Brands: Why do the U.S. and E.U. Disagree? ", *EuroChoices*, Vol.4, No. 2, pp. 28-35.
- Henchion, M. and McIntyre, B. (2000), "Regional Imagery and Quality Products: The Irish Experience ", *British Food Journal*, Vol.102, No. 8, pp. 630-644.
- Henson, S. and Caswell, J. (1999), "Food Safety Regulation: An Overview of Contemporary Issue", *Food Policy*, Vol. 24, No. 6, pp. 589-603.

- Hughes, A. (2000), "Retailers, Knowledges and Changing Commodity Networks: The Case of the Cut Flower Trade", *Geoforum*, Vol. 31, No. 2, pp.175-190.
- Hunt, S. and Frewer, L. (2001), "Trust in Sources of Information about Genetically Modified Food Risks in the U.K. ", *British Food Journal*, Vol. 103, No. 1, pp. 46-63.
- IBM (2008), "*IBM Survey Reveals Erosion of Trust and Confidence in Food Retailers and Manufacturers Grows Internationally*", available at <http://www-03.ibm.com/press/us/en/pressrelease/26268.wss> (accessed 15, Dec. 2014).
- Ilbery, B. and Kneafsey, M. (2000), "Producers Constructions of Quality in Regional Speciality Food Production: A Case Study from South West England", *Journal of Rural Studies*, Vol. 16, No. 2, pp. 217-230.
- Ilbery, B. and Maye, D. (2005), "Alternative (Shorter) Food Supply Chains and Specialist Livestock Products in the Scottish-English Borders", *Environment and Planning A*, Vol. 37, No. 3, pp. 823-844.
- Kang, J., Yu, X., Xie, D., Li, Z., Shi, Z., and Yang, Q. (2002), "The Pesticide Remaining Inspection in the Lingbo Area in 2001", *Chinese Journal of Health Laboratory*, Vol. 12, No. 3, pp. 318-318.
- Kneafsey, M., Holloway, L., Venn, L., Cox, R., Dowler, E., and Tuomainen, H. (2008), *Reconnecting Consumers, Producers and Food*, Berg, Oxford.
- Kuznesof, S., Tergear, A., and Moxey, A. (1997), "Regional Foods: A Consumer Perspective", *British Food Journal*, Vol. 99, No. 6, pp. 199-206.
- Larner, W. and Le Heron, R. (2002), "From Economic Globalisation to Globalising Economic Processes: Towards Post-Structural Political Economies", *Geoforum*, Vol. 33, No. 4, pp. 415-419.
- Mansfield, B. (2003), "Spatializing Globalization: A 'Geography of Quality' in the Seafood Industry", *Economic Geography*, Vol. 79, No. 1, pp. 1-16.
- Murdoch, J., Marsden, T., and Banks, J. (2000), "Quality, Nature, and Embeddedness: Some Theoretical Consideration in the Context of the Food Sector", *Economic Geography*, Vol. 76, No. 2, pp. 107-125.

- National Bureau of Statistics of China (2012), "*China Statistic Year Book 2012*", available at <http://www.stats.gov.cn/tjsj/ndsj/2012/indexch.htm> (accessed 15, Dec. 2014).
- O'Reilly, S. and Haines, M. (2004), "Marketing Quality Food Products - A Comparison of Two SME Marketing Networks", *Food Economics*, Vol. 1, pp. 137-150.
- Ouyang, H. (2011), "*A Report of Consumer Confidence on Food Safety: 2010-2011*", *Xiao Kang*, Vol. 8, No. 1, pp. 35-38.
- Parrott, N., Wilson, N., and Murdoch, J. (2002), "Spatializing Quality: Regional Protection and the Alternative Geography of Food", *European Urban & Regional Studies*, Vol. 9, No. 3, pp. 241-261.
- Renting, H., Marsden, T., and Banks, J. (2003), "Understanding Alternative Food Networks: Exploring the Role of Short Food Supply Chains in Rural Development", *Environment & Planning A*, Vol. 35, No. 3, pp. 393-411.
- Roberts, D. and Engardio, P. (2006), "Secrets, Lies, and Sweatshops", *Business Week* 27 November, pp. 50-58.
- Roth, A., Tsay, A., Pullman, M., and Gray, J. (2008), "Unraveling the Food Supply Chain: Strategic Insights from China and the 2007 Recalls", *Journal of Supply Chain Management*, Vol. 44, No. 1, pp. 22-39.
- Shine, A., O'Reilly, S., and O'Sullivan, K. (1997), "Consumer use of Nutritional Labelling", *British Food Journal*, Vol. 99, No. 8, pp. 290-296.
- Stake, R. (2005), "Qualitative Case Study", in Denzin, N. and Lincoln, Y. (Eds.), *The Sage Handbook of Qualitative Research*, Sage, London, pp. 443-466.
- State Intellectual Property Office of P.R.C. (2011), "*The Promotion Plan for the Implementation of the National Intellectual Property Strategy in 2011*", available at http://english.sipo.gov.cn/laws/developing/201104/t20110426_601292.html (accessed 15, Dec. 2014).
- State Intellectual Property Office of P.R.C. (2003), "*Measures for the Registration and Administration of Collective Marks and Certification Marks*", available at http://www.sipo.gov.cn/zcfg/flfg/sb/bmgz/200804/t20080403_369227.html (accessed 15, Dec. 2014)

- Tam, W. and Yang, D. (2005), "Food Safety and the Development of Regulatory Institutions in China", *Asian Perspective*, Vol. 29, No. 4, pp. 5-36.
- The Center For Agri-food Quality & Safety, the ministry of Agriculture of the Peoples Republic of China (2008), "*Measures for the Administration of Geographical Indications of Agricultural Products*", available at <http://www.aqsc.gov.cn/policy/policyShow.asp?policyId=46> (accessed 07, July. 2013).
- Tregear, A., Arfini, F., Belletti, G., and Marescotti, A. (2007), "Regional Foods and Rural Development: The Role of Product Qualification", *Journal of Rural Studies*, Vol. 23, No. 1, pp. 12-22.
- Van der Ploeg, J., Renting, H., Brunori, G., Knickel, K., Mannion, J., Marsden, T., de Roest, K., and Sevilla-Guzmán, E. V., F. (2000), "Rural Development: From Practices and Policies towards Theory", *Sociologia Ruralis*, Vol. 40, No. 4, pp. 391-408.
- Williams, J. (2005), "*Understanding the Overuse of Chemical Fertiliser in China: A Synthesis of Historic Trends, Recent Studies, and Field Experiences*", available at http://forestry.msu.edu/china/new%20folder/jo_fertiliser.pdf (accessed 6, May 2013).
- Winter, M. (2003), "Geographies of Food: Agro-Food Geographies - Making Reconnections", *Progress in Human Geography*, Vol. 27, No. 4, pp. 505-513.
- World Bank (2006), *China's Compliance with Food Safety Requirements for Fruits and Vegetables: Promoting Food Safety, Competitiveness, and Poverty Reduction*, World Bank and China Agriculture Press, BeiJing and Washington D.C.
- Zhao, X., Finlay, D., Kneafsey, M. (2014), "The effectiveness of contemporary Geographical Indications (GIs) schemes in enhancing the quality of Chinese agrifoods - Experiences from the field", *Journal of Rural Studies*, Vol.27, No. 6, pp.77-86.